



GLAST Monthly PSR

Flight Software / Simulation

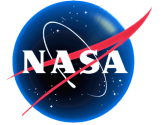
October 6, 2004

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GLAST Software & Systems

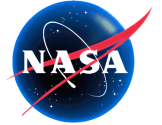
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Spacecraft Flight Software

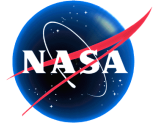


- *Writing & Testing Software*
 - *IEM up and integrated with Build 2 FSW*
 - *Working the integration with the GNC code (Build 3 work)*
 - *LAT SIIS Software upgrades completed*
 - *Boot Code modifications being worked now (this month)*
 - *Second round of Code Walk Through (Build 3) completed*
- *Supported slide review and RFA responses for MCDR.*
- *Supporting additional reliability for software through the Mission Robustness Study*
 - *Boot-up sequence*
 - *Troubleshooting diagnostics*
- *IV&V Update*
 - *Good communications and working relationship exists.*
 - *Participating in CWTs. Ongoing biweekly telecon continue.*
 - *Requirements TIMs done. SDD TIMs delivered – to be worked*
 - *GNC Report & TIMs due this week. Don't leave home without it.*



LAT Flight Software

- ▶ *LAT FSW Flight Unit Peer Review held Sept 16.*
 - *Review went well, although there were a sprinkling of “may”, “perhaps”, and “possible” in the talks.*
 - *This review represents a FSW CDR across the full system.*
 - *Rolled out updated FSW Schedule which shows additional month (or slightly more) of development, and an added month of testing. FQT now set for the end of April '05.*
 - *Six RFAs, none of them show-stopping.*
- ▶ *Software (re)Development continues*
 - *Many software modules are under development.*
 - *Version-itis is a bug that's quite contagious these days.*
 - *(redevelopment) Re-work of the LCB driver to support updates to the LCB H/W. FPGA testing complete, code testing continues through this week. Logistics of delivery to field remains to be done.*



LAT Flight Software Test

▶ *FSW Test*

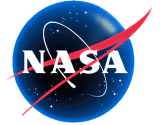
- *FSW Test Plan – V3 Baselined thru FSW CCB.*
- *Following Review Team comments - Software Test Team moved under FSW Manager, Jeff Fisher*
 - *Eric Hansen (lead) focused on ISIS (bad for FSW, good for ISIS)*
 - *Team includes Shantha and Igor, and TBH Physics Tester.*
- *More additional “FSW” “Corner Test Stands” identified and placed (informally) in FSW Control*

▶ *FSW Monthly Demo*

- *September Demo: Showed Science Data Interface to SDIS.*
- *October Demo: EPU boot.*
 - *Should show the full boot sequence, linked in with SIU boot, then EPU boot.*
 - *Demo in *big* jeopardy – SLAC has not provided working hardware to NRL to do development and testing with.*

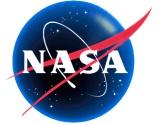
▶ *IVV Activity*

- *All LAT Requirements TIMs closed.*
- *One Design TIM open (from the FUPR Review);*
- *Reviewing the LAT FSW Test Plan now*



GBM Flight Software

- *Found and fixed problem in Build 1 (Whew!)*
 - *Involved problems in the RTEMS v4.0 O/S. (Bug fixed in v4.6.1)*
- *FSW Test Team has tested Build 1 almost to completion – no significant problems.*
 - *This is going into the FPRM on the GBM. (Gold Code)*
- *Build 1 software includes Exception Handling code from SwRI.*
- *Documentation for Build 1 is in progress. No problems here.*
- *(GBM CDR RFA) Working FSW Schedule rebaseline & integration to project schedule in progress.*
 - *FSW Schedule for Build 2 (pre-PER, April '05) and 2.1 (pre-PSR, Sept '05) in internal review.*
 - *Details of what's the delta being worked. Includes: AGC, Time History*
- *GBM ISIS Test Team lost its K2 CPU board (heart of the SDIS), so GSIS work is on hold.*



FSW Upcoming Plans

► **SC FSW Plans**

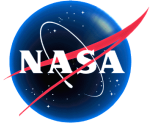
- *Boot Code to meet CDR Requirements (via RFAs)*
- *Mission Robustness Study support – new requirements.*
- *Address IV&V TIMs against the Design Documents*
- *Code Walk Through Reviews for Build 3+ (or 4) to be scheduled.*

► **LAT FSW Plans**

- *First formal FSW Testing - Instrument-to-Spacecraft Interface Simulator (ISIS) requirements doc to be tested and delivered to ISIS test/delivery team.*
- *Plan delivery of 'new/final' LCB capability (H/W, S/W, Firmware) to field.*
- *Demo's continue – we're behind but progressing.*

► **GBM FSW Plans**

- *FSW Build 1 Documentation and Testing continues until mid-October.*
- *Build 2 Development*
- *Build 1 FSW load is the basis for:*
 - *GBM-SC Interface Simulator (GSIS) delivery in Oct 2004 (tbr) to Spectrum Astro.*
 - *FEPROM (Flight PROM) in the GBM DPU*

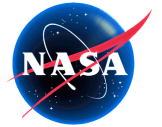


Issue & Concern

- ▶ ***Issue: EEPROM susceptibility to corruption***
- ▶ ***SC NVM (8 MB), LAT SIB (6 MB), GBM DPU (512 KB)***
 - *All use EEPROM, all have ample margin.*
 - *SC and GBM have EDAC protection.*
 - *Programming and software techniques used to mitigate risk.*
 - *All proceeding with development and design*
- ▶ ***RAD750 SUROM is EEPROM (Affects LAT and SC)***
 - *Potential mitigations include replacing SUROM EEPROM (256K) with PROM (64K)*
 - *65 PROMs (238A790-114T, 3.3V) on order as risk reduction.*
 - *SC & LAT Boot images sized to fit in 64KB. (LAT made modifications to support)*
 - *Ongoing Actions detailed at meeting on 10/5/04.*
 - *Both SLAC and Spectrum prefer not to change. RFA response indicates such.*
- ▶ ***Issue: FPGAs***
 - *Spectrum, MSFC and SLAC have RMAs in place so –SU parts are on order. Spectrum has “delivery date” window of 11/1 – 12/15.*
 - *Issue being worked.*



S/C Simulators Accomplishments



6 October 2004

► **LAT SIIS Delivery**

- *GPO reviewed and provided comments on LAT SIIS and SIIS Harness documentation*
 - *Acceptance Test Procedure*
 - *SIIS User's Guide*
 - *SIIS and Harness Drawings*
 - *PERL Test Scripts*
- *GPO Issues are being addressed by Spectrum with the following exceptions*
 - *Will not require Spectrum to make changes to match DAQ and SIU voltages*
 - *Will need Spectrum to measure the voltages under load*

► **SIIS Delivery will occur no earlier than the first week in November**

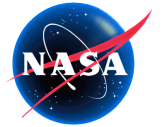
► **GBM SDIS K2 CPU board shipped to Spectrum for integration into the GNC mini hot bench**

- *Takes the place of the "SIIS Loaner" CPU which remains at SLAC.*



S/C Simulators

6 October 2004



► **Plans**

- *Work with Spectrum to address GPO issues with LAT SIIS*
- *Continue early coordination efforts for LAT and GBM ISIS*
 - *Similar effort to that which was performed for the SIIS*
 - *Review design documents, ATP, drawings, etc.*
- *Work with SLAC to identify areas where SIIS may need augmented capabilities in order to support test plan*
- *Complete CCR 247 – MTS Instrument Simulation Capabilities*

► **Issues**

- *GBM ISIS: Delivery delayed*
 - *GBM SDIS K2 card sent to SAI to be used in GNC Mini Hot Bench*
- *LAT ISIS: Delivery delayed*
 - *LAT ISIS delivery is tied to LAT SIIS delivery*
 - *ISIS could be delivered roughly 4 weeks after SIIS delivery*